

C. W. WHITE.
GRAIN DOOR.

APPLICATION FILED APR. 22, 1912.

1,038,696.

Patented Sept. 17, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

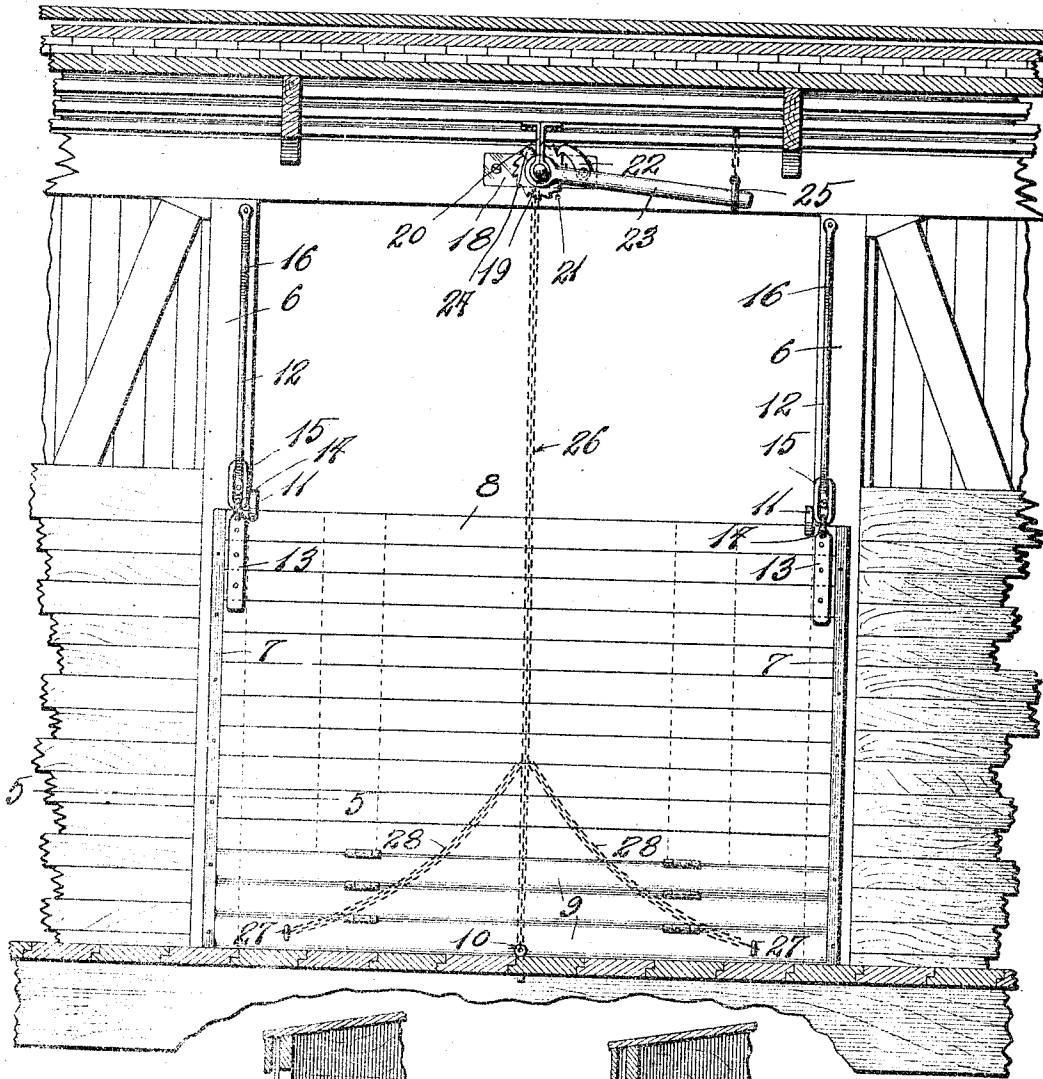
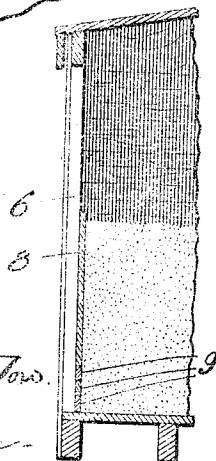
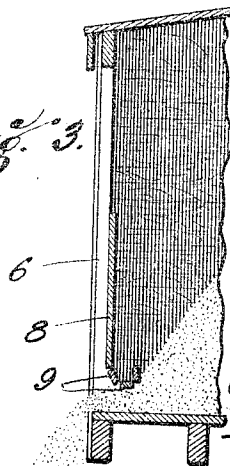


Fig. 2.



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Fig. 3.



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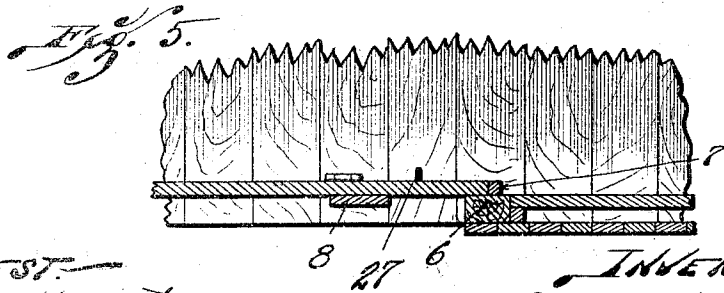
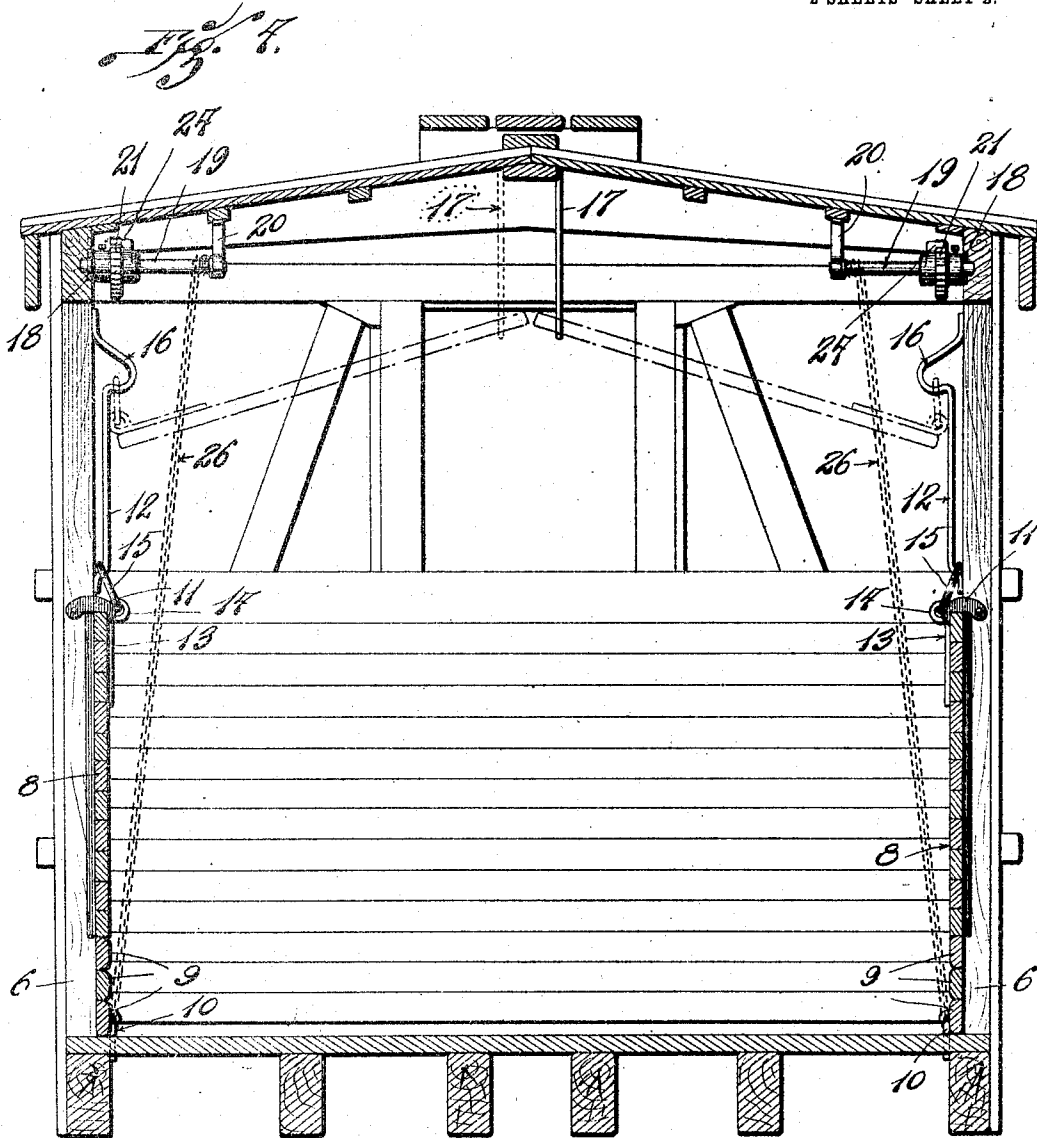
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WITNESSES—
F. M. Harrington.
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UNITED STATES PATENT OFFICE.

CHARLES W. WHITE, OF EAST ST. LOUIS, ILLINOIS.

GRAIN-DOOR.

1,038,696.

Specification of Letters Patent.

Patented Sept. 17, 1912.

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To all whom it may concern:

Be it known that I, CHARLES W. WHITE, a citizen of the United States, and resident of East St. Louis, St. Clair county, Illinois, have invented certain new and useful Improvements in Grain-Doors, of which the following is a specification, containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in grain doors for railway cars, and the object of my invention is to construct a door provided with means for securing it, without nailing, in a car door opening and to construct the lowermost end of the door of a plurality of hinged sections, which may be manipulated to permit grain to flow from the car, so that the pressure of the grain may be released from the door in order that the door may be elevated for the further removal of the grain from the car.

With the above purposes in view my invention consists in certain novel features of construction and arrangement of parts as will be hereinafter more fully described, pointed out in the claims and illustrated by the accompanying drawings, in which—

Figure 1 is a longitudinal, sectional elevation of a grain car equipped with a grain door constructed according to my invention; Fig. 2 is a fragmental, transverse, sectional elevation of a car equipped with one of my improved doors and filled with grain; Fig. 3 is a view similar to Fig. 2 illustrating the grain door partially open and the grain flowing from the car; Fig. 4 is a transverse, sectional elevation of a grain car equipped with a pair of my improved doors; and Fig. 5 is a sectional plan taken on the line 5—5 of Fig. 1.

Referring by numerals to the accompanying drawings: 6—6 designate the door posts to which are secured the stops 7.

To the lowermost end of the body portion 8 of my improved door are hingedly secured the hinged sections 9.

10 designates a bolt which is inserted through an opening formed in the floor of the car between the posts 6, as required to hold the hinged sections 9 of the door parallel with the body portion 8.

11 designates door keepers or dogs which are hinged to the door posts 6 and arranged

to hook over the top of the body portion 8 of the grain door so as to hold the door in position between the stops 7.

12 designates guide rods secured to the posts 6 above the stops 7.

13 designates straps which are secured to the body portion 8 of the grain door and in each of which there is an eye 14 for the support of the links 15, which links are arranged to embrace and slide upon the guide rods 12.

Formed in each of the guide rods is an off-set 16 in which the links 15 rest when the door is elevated, as shown by dotted lines in Fig. 4.

Carried by the ridge pole of the car is a pair of overhead door catches or hooks 17 which support the inner ends of the body portion 8 when not in use.

Secured to the inside face of the side plate of the car above the door opening is a metallic plate 18 in which is journaled a shaft 19, the opposite end of the shaft being journaled in a bearing 20 suspended from the roof of the car.

21 designates a ratchet secured to rotate with the shaft 19.

22 designates a pawl which is gravity actuated to permit a rotation of the shaft 19 in one direction only.

23 designates a lever which is pivotally supported upon the shaft 19 and which carries an integral dog 24 for engagement with the ratchet wheel 21. The lever 23 loosely embraces the shaft 19 so that it may be moved lengthwise thereof, whereby the dog 24 may be moved out of engagement with the ratchet 21.

25 designates a ring which is suspended from the roof of the car for the support of the free end of the lever 23.

26 designates a flexible connection having one of its ends connected with the bolt 10 and its other end secured to the shaft 19 and arranged to be wound around the shaft.

27 designates eyes which are secured to the lowermost one of the hinge sections 9 of the car door, and 28 designates flexible connections between the eyes 27 and the flexible connection 26.

In the practical operation of my improved door, assuming the car to be filled with grain as shown in Fig. 2, the operator releases the ring 25 from the lever 23 and

moves the lever so as to bring the dog 24 to engage with the ratchet 21. Then, by a rotation of the ratchet wheel, the shaft 19 will act as a drum and wind up the flexible connection 26 so as to release the bolt 10 to permit the hinging of the sections 9 of the grain door. A further manipulation of the lever 23 will cause the flexible connections 28 to draw out or cause the hinged sections 9 to assume the positions shown in Fig. 3; thereby permitting the grain to flow from the car so that the weight of the grain will be taken away from the body portion 8 of the grain door. The operator then releases the door keepers 11 and elevates the entire door, the links 15 guiding the door over the rods 12 so that the links will be brought to the off-sets 16. The doors are then swung to the positions shown in Fig. 4 and their inner ends secured in an elevated position by the hooks 17. The unloading of the car then proceeds in a common manner. If it be desired to again reload the car with grain the hooks 17 are released from the inner ends of the doors and the doors are moved downwardly between the stops 7 and secured by the keepers 11. The bolt 10 is then placed in position to prevent hinging of the sections 9 of the door.

It is obvious from such a construction that the door may be repeatedly used, as

there is no nailing or other like securing of the door.

I claim:

1. In combination with a car having door posts, a stop carried by each post, a guide rod carried by each post, a grain door having a rigid body portion provided with a flexible lower end, means for securing the body portion of the grain door to the door posts, means for securing the flexible lower end of the door against hinging, and means for slidably connecting the body portion of the grain door with said guide rods.

2. A grain door having a rigid body portion and a plurality of hinged sections at its lower end, means for detachably securing the rigid body portion in place in the car, means for securing the hinged sections against movement, a winding shaft, flexible connections between said shaft, and the means which secures the flexible sections of the grain door against movement, and a flexible connection with one of the hinged sections and said winding shaft.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

CHARLES W. WHITE.

Witnesses:

E. L. WALLACE,
N. G. BUTLER.